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## COMPLETE PARALYSIS OF THE LATERAL MOVEMENTS OF BOTH EYES.—ABILITY TO CONVERGE REMAINING INTACT.

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The following case, a unique one in my own experience, I present as worthy of record:

M. McL., æt. 33 years, married, born in Ireland, laborer, presented himself at the Out Patient Department of the Western Reserve University, March 21, 1890, with the following history. Twelve or thirteen years ago first noticed that he saw double, but this passed off in a short time; he can remember no other symptoms. Occasionally since then he has seen double but he is not able to give any definite information about these attacks. Six or seven weeks prior to the time I first saw him he states that he had an attack of the Grippe, and since that time he has had a great deal of pain in the head in different parts, quite severe at times, and he has been much annoyed by the double images. The patient is a large muscular looking man, weighing 195 to 200 pounds, somewhat stupid

in his mental make up, and has been addicted to the excessive use of alcoholic stimulants for ten or twelve years. Denies any history of syphilis. Examination shows in each eye V.=  $\frac{4}{1X}$  (?). In his winking one notices that the left eye does not close nearly so quickly or fully as the right—as if acting very sluggishly—but it does close by forcible use of the orbicularis muscle. When an object is carried up or down before the eyes they follow it perfectly well and freely. When, however, the object is carried either to the right or the left of the median line both eyes are firmly fixed and in no position of the field can the eyes be seen to turn laterally. When we ask the patient to fix the finger and this is carried toward the eyes the two eyes are seen to converge so that the finger may be carried to within seven or eight inches of the eyes, they still fixing in the median line. Pupillary reaction is normal in both eyes. The ophthalmoscope shows each optic disc small, round, with a narrow choroidal ring, a slightly deepened pearly color, a slight degree of H. and fundus otherwise normal. The general condition of his nervous system was examined by my friend Dr. H. S. Upson, who reported no paralysis or anæsthesia of the upper or lower extremities, knee jerk fairly marked, equal, no ankle clonus, and no tenderness on percussion over the skull. The only history of any illness we can find is that he had an attack of malaria about three years ago, lasting four or five weeks. The patient was ordered grs. x. of potass. iodid. three times daily. One week later he returned the right eye especially showing very perceptible lateral motion with vertical movements free. The excursion outwardly of the right eye was well marked while the inward excursion was much less. The left eye would barely turn beyond the median line outward. I should have been disposed to attribute great virtue to the use of iodide of potassium, had I not taken the precaution to inquire if he had taken the medicine, when he informed me he had spilled it and had taken but a few doses.

On April 4, I again saw him when I found the lateral movements of the right eye seemed to be quite normal, while the

condition of the left eye was improving with very perceptible movement of the eye-ball outwardly beyond the median line, but the movements of the eye very plainly still lagged behind those of its fellow in both lateral directions, much more so, however, when the object was carried to the patient's left. The other movements of the eye-balls continued normal. The iodide of potassium had been continued.

Since this date I have not seen the patient and do not know the final outcome of the trouble. The only indication of there being or having been any other paralytic symptom about the face other than the eye-balls themselves, was the slight impairment of motion observed in the left eye in winking.

The case seems to me unusual in the paralysis being confined to the eyes alone, the trouble being an acute one, not being congenital, and subsiding so rapidly.

## EXPERIENCES WITH PYOKTANIN IN OPHTHALMOLOGICAL AND OTOLOGICAL PRACTICE.

BY ADOLF ALT, M.D.

Read before the St. Louis Medical Society, October 11, 1890.

After having carefully perused a paper by Prof. J. Stilling, of Strassburg "On the Aniline Colors as Disinfectants," which was published in the April number of the *Archives d'Ophtalmologie*, I felt that Stilling's name might be a warrant for the correctness of the statements therein contained. I was certainly struck with the carefulness with which the exhaustive experiments seemed to have been made, and with the rationality of the deductions derived therefrom, and I felt that it was my duty to give my patients the benefit of his labors as soon as possible. Since June I have used it daily in my practice. I used exclusively the methyl violet, as sold by Merck, chemically pure, under the name of pyoktanin, and I did so according to Stilling's recommendation in solutions of 1 in 2,000, 1,500 and 1,000; and in the shape of a pencil.

The main qualities of this remedy as claimed by Stilling are, that it is non-poisonous; that after having rendered a wound aseptic, it will keep on doing so for a prolonged period; that it will be taken up by the tissues and be carried into their depth. The microbes which it destroys, *par excellence*, according to Stilling, are the pyogenous ones. He found that a solution of 1 in 64,000 even would arrest their growth, while one of 1 in 2,000 would absolutely destroy their vitality.

Purulent processes, then, were the ones in which to try its efficacy first. At the time when I received the remedy I was treating several cases of corneal ulceration, on which I tried

it at once, and I will state right here, that I was greatly disappointed. In one case, in spite of the application of the pyoktanin pencil to the fundus of the ulcer, and later on of repeated instillations of a 1 in 2,000 solution, the ulcer grew larger and larger. Finally, being convinced that I was losing ground as well as time, I gave up the pyoktanin and treated the case without it, and with much better effect. In some other cases of corneal ulceration pyoktanin did no better, perhaps no worse, than other methods of treatment. In one case of abscess of the cornea after a slight injury, the whole cornea was destroyed in a shorter period than, I think, I have ever seen it before. All of these patients, and a number of other ones treated with pyoktanin, stated that they "felt" considerably better after the instillation. Pyoktanin, therefore, seems to have a certain amount of analgesic power.

Contrary to J. Stilling's invariable experience, I never saw the contents of the anterior chamber and the iris become blue after the instillation of pyoktanin into the conjunctival sac, although the external surface was deeply stained. Even the deepest staining had almost totally disappeared after 24 hours.

In a case of furuncle near the outer canthus, and a case of purulent dakryocystitis, pyoktanin acted well.

The best results in purulent affections I have, however, seen in cases of purulent otitis media, with or without polypoid formations. Having cleansed the ear carefully with cotton, I instill three or four drops of the pyoktanin solution. Even after one such treatment the character of the discharge is altered. From muco-pus or pus it is changed to almost simply glassy mucus. In old cases the disagreeable smell disappears, and where pain exists the instillations seem to greatly modify it. Granulations, and even larger polypoid formations undoubtedly are materially influenced by pyoktanin. They shrink rapidly, especially at first. In acute and subacute otitis media purulenta, I have seen the discharge disappear after one or two instillations, and while in some cases it would, later on, reappear, in others it staid away as long as they were under observation.

I suppose the good results in these cases were largely due to the fact that the pyoktanin remained constantly in contact with the diseased surface, and when being dissolved by new discharge at once acted upon it as a disinfectant.

In a few cases of furunculosis of the external meatus its action was very beneficial.

I tried pyoktanin, further on, in a considerable number of cases of parenchymatous keratitis. All of them felt better—but, with the exception of one case in a child, none made any remarkable progress.

In several cases of marginal blepharitis and phlyctænular keratitis I obtained no favorable results whatever.

In a case of very severe syphilitic iritis with gummata, the influence of one or two daily instillations seemed to be beneficial—certainly, the patient was every time relieved from his pain.

In several cases of more superficial injuries to the eye which I saw soon after the accident, pyoktanin seemed to act as well as could be wished for. In injuries involving the deeper parts of the eye, it did no more good than other antiseptics.

I especially mention all these cases, since Stilling had stated, that his results in similar cases had been remarkably excellent. The power of penetrating into the depth of the tissues, and there, so to speak, to hunt for the microbes and to kill them, which Stilling considered as one of the chief characteristics of the aniline colors, I have, I am sorry to say, not been able to verify.

I have used it, furthermore, in a comparatively large number of eye-operations. Here it has done well—or at least no infection took place—but the same result has been reached by other antiseptics, and even before we had them. After this statement I have to mention one case in which enucleation of an eyeball was followed by erysipelas in spite of pyoktanin and other disinfectants. Silk sutures disinfected with pyoktanin have done decidedly better than with other disinfectants, so that I have been enabled to leave them *in situ* much longer without the least pus-formation, or even redness around them, than with any other antiseptic remedy.

In a second paper, in which Stilling tries to save his child from being too early choked to death by adverse reports, he still maintains his first statements, but he now recommends the remedy in much more concentrated forms. These I have not tried, because even a solution of 1 to 1000 was very disagreeably felt in the eye, and in one case caused excessive pain.

To sum up my experience to date, I may say that in ophthalmic practice my results do not show that pyoktanin is any better than, or, perhaps, even as good as, the bichloride of mercury, and it is, moreover, a somewhat disagreeable thing to handle on account of the staining.

I find it to act very well in purulent otitis media, and furunculosis of the external auditory canal.

It is probably as good an antiseptic as the bichloride of mercury to be used after operations, and decidedly better for sutures.

It has neither aroused my enthusiasm, nor would I feel content to simply throw it overboard, until I have made further trials. That it is not all that Stilling claims for it, I am certain.



## SOCIETY PROCEEDINGS.

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### A DISCUSSION OF THE CAUSES, PREVENTION, AND TREATMENT OF MYOPIA.

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In the Section of Ophthalmology at the Annual Meeting of the British Medical Association at Birmingham, July, 1890.

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I.—PRIESTLEY SMITH, M.R.C.S.,

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The subject set down for our discussion is large; we cannot hope to deal fully with every part of it, but the chief points of practical importance will be raised, I think, if I ask you to consider the three following questions:

1. Is myopia a disease?
2. Can we prevent its occurrence or lessen its frequency?
3. On what general principles shall we deal with those who have it?

These are elementary questions, but they cover many points on which we are not entirely agreed, and which we may usefully discuss.

1. *Is Myopia a Disease?*—Donders, writing in 1864, said:<sup>1</sup> "The emmetropic eye is the normal eye. \* \* A near-sighted eye is not a sound eye. \* \* Progressive myopia is a true disease of the eye. \* \* In youth almost every myopia is progressive." On the other hand, he admits that a slight degree of myopia may have its advantages for men engaged in study or minute work, and that in advanced life a

<sup>1</sup>Donders, *Refraction and Accommodation of the Eye*, New Sydenham Society, vol. xxii, pp. 341, 343, 392, and 213.



moderate myopia does not threaten the eye with any special danger, and confers a privilege, namely, that of reading easily without glasses, which may well be envied by emmetropic eyes. In the pages of later writers we find doctrines which differ considerably in one way or another from that of Donders. One or two quotations will suffice. Landolt<sup>2</sup> is inclined to regard myopia, when it is not accompanied by damage of the tissues, as an adaptation of the organ "to the functions of a superior race," as being "instituted in the interest of intellectual progress." He confesses, however, that Nature, in thus attempting to better the refraction, has not yet improved upon the workmanship of the emmetropic eye; that, on the contrary, she very frequently overshoots the mark, and not only makes the eye much nearer sighted than is desirable, but greatly damages its tissues in so doing; that myopic eyes bear the imprint of forced evolution, and are the type of hypertrophy rather than of perfection.

Berry<sup>3</sup> takes a somewhat similar view of the matter. He says that great confusion has arisen from a failure to discriminate between the myopia due to disease and the much commoner myopia which is the expression of a particular type, and is no more to be looked upon as pathological than is, for instance, the attainment of a greater than average stature. He says that we have wrongly assumed that the fate of a malignant myopia is the possible fate of every myope, and that this false assumption has given rise to all sorts of theories to explain the progression of myopia during the period of growth, and to a corresponding number of more or less unpractical proposals as to how such progression is to be stopped.

Stilling<sup>4</sup> speaks even more positively to the same effect. He asserts that myopia of progressive type and disastrous issue is originally and essentially of different nature from the milder

<sup>2</sup>Landolt, *Refraction and Accommodation of the Eye*, English Edition, pp. 420 and 421.

<sup>3</sup>Berry, *Diseases of the Eye*, 1889, p. 417.

<sup>4</sup>Trans. of Ophth. Soc. at Heidelberg, 1886, p. 14, see *Ophth. Rev.*, vol. vi, p. 7.

forms; it is not an aggravation of the latter. In high myopia, he says, the eye is diseased; it is not diseased because it is myopic; it is myopic because it is diseased.

Now, if these differences of opinion had no bearing on our manner of treating myopia we could afford to trouble ourselves little about them; but this is not the case. Our very aims in dealing with this widely spread condition of the eye must vary according as we read its nature in one way or another. If we really believe that Nature, when she transforms an emmetropic boy into a myopic youth is attempting to improve the race, we must, of course, welcome her efforts so long as she does not go too far or spoil the tissues of the eye. If we are convinced that high and disabling myopia is a fundamentally different thing from moderate and innocent myopia, and not an aggravation of it, we shall, of course, take no steps to prevent the one from developing into the other; but if, on the other hand, we regard every myopia from its very outset as an optical defect—a defect which from an innocent beginning may, for aught we can tell beforehand, pass on to a grave ending—we shall strive to prevent its occurrence if possible, and when it does occur to arrest its progress as soon and as completely as possible.

Let us briefly consider the facts. Up to the age of 45 at least, the emmetrope commands clear retinal pictures of objects at every distance greater than 12 inches from his eyes. Whether he be a philosopher or a sportsman, a newspaper editor or a landscape painter, a clerk at the desk or a sailor on the lookout, his eyes are perfect for his purpose. He enjoys an extent of visual power which the most fortunate myope can only obtain by artificial means. Beyond 45 or 50, the emmetrope, while he still has an advantage over the myope in distant vision, is at a disadvantage in reading; he must use glasses, while his slightly myopic rival still reads easily without. Either may now claim to be the better off; it is purely a question of taste; but we must remember that the myope has paid for his temporary privilege by a lifetime of short sight, while the emmetrope through nearly half a century has had no

disability whatever. Even the ophthalmic operator, who knows how helpful a single dioptré of myopia may be to him at 50 years of age, will admit that the balance of advantage lies, on the whole, with the emmetrope.

Myopia, we are told, is the companion of intellectual progress, and truly it appears to be so, but it is a bad companion, not a friend. The details of the landscape, the shapes and movements of living creatures, architecture, pictures, the drama, the expression on the faces of our friends, surely it is well for the most intellectual man or woman to see these things without artificial aid. The emmetrope can see them all, and his books as well, until he is more than middle-aged, and then a pair of reading glasses restores to him all that he loses. If Nature really wishes to ease the toil of the scholar by shortening the focus of his eyes, she should at least reverse the action of his ciliary muscles and give him an active accommodation for distance, so that he might still in his leisure moments look abroad beyond his books.

In my judgment, then, myopia is a defect even when we regard the optical condition only. When we regard the tissue changes which frequently accompany it, the matter is still less open to question. What is the nature of the myopic process?

In early infancy, hypermetropia appears to be the normal condition of the human eye. During childhood, among civilized peoples at least, the large majority of eyes become emmetropic, or nearly so; in other words, the refraction increases with the growth of the eye in very early life. This implies not a simple increase of size, but a change of proportion in certain dimensions; the length of the globe increases more than the focal length of the media. In many cases this increase is insufficient, and the eye remains permanently hypermetropic; in other cases it is excessive, and more or less myopia is permanently established. Hence the assertion that myopia in many cases is in no sense pathological, but simply the expression of redundant growth. The doctrine is reasonable, and is supported by the fact that in many cases of slight

and moderate myopia we find no morbid tissue changes, and that at the time when the growth of the body is completed, the myopia usually ceases to increase. But it is a dangerous doctrine, for it fails to cover certain other facts which cannot be safely disregarded.

In many cases of slight and moderate myopia, and in nearly all cases of high myopia, we find morbid tissue changes which imply something very different from redundant growth, namely, extension, thinning, and atrophy of the tunics in the neighborhood of the optic nerve—changes which appear to show that the strain falling on these membranes in this situation is greater than they can adequately bear. The amount and increase of the atrophy is clearly connected with the amount and increase of the myopia. In the same eye it may be absent when the myopia is beginning, well marked when it is further advanced. Clearly, then, we have often to deal with some cause or causes beyond a mere excess of normal growth.

The position and nature of the atrophy, the conditions of life under which it is chiefly met with, its increase under certain circumstances, its non-increase under others—all appear to show that it is caused mainly by the action of the muscles during convergence of the eyes, at a time of life when the sclera in the neighborhood of the optic nerve cannot adequately bear the strain, in other words, the overuse of the eyes on near objects in early life. According to Donders, strong convergence, the stooping position, and certain predisposing conditions are the principal causes of staphyloma posticum, and staphyloma posticum is almost synonymous with myopia. All subsequent investigation has, in my opinion, tended to substantiate this dictum.

What are the causes which predispose certain children to become myopic while others living under similar external conditions remain emmetropic or even hypermetropic? Various possible causes have been suggested; for example, peculiarities in the structure of the sclera, especially at the point where it joins the sheath of the optic nerve; peculiarities in the optic

nerve, which cause it to offer a more than usual resistance to the rotation of the eye; peculiarities in the muscles affecting the directions in which they act upon the globe or their relations to the emerging vortex veins; peculiarities in the size, shape and position of the orbits. The evidence as to these predisposing causes is not yet, I think, very definite or conclusive. Of more practical importance is the distinctly hereditary nature of the predisposition; the children of myopes are not born myopic, but they are, as a rule, more apt to develop myopia than are the children of emmetropes. Curiously enough, some people seem to think that because a myopia is inherited it is therefore a natural and unobjectionable condition, which may be allowed to take its own course. The very opposite is true. Myopic parents ought to be doubly careful to protect their children from the active causes of myopia, and this for the sake not of the children only, but of the children's children.

I will not trouble you with figures to prove a close connection between school life and the development of myopia. Since Hermann Cohn led the way by his admirable research at Breslau nearly 25 years ago, statistics of the refraction of school children and college students have accumulated in overwhelming quantities. Their significance is disputed by some authorities, but to my mind, and I think to the minds of most of us, they give strong confirmation to the views of Donders, who, speaking of the injurious effects of continued strong convergence of the eyes and the stooping position of the head during reading and writing, declared that the foundation of myopia is mainly laid in the schools.<sup>5</sup>

It is true that very high myopia is sometimes met with in persons who have never used their eyes much on near objects, for instance, in young children and in illiterate persons belonging to the laboring class. These exceptions do not disprove the rule; they show merely that the tunics may, under some conditions, become over-distended, apart from excessive

<sup>5</sup>Accommodation and Refraction of the Eye, p. 343.

action of the muscles and apart also from glaucomatous pressure in the eye. Whether this depends upon an original defect of structure or upon malnutrition of the tunics we do not know. Possibly the yielding and deformation of the sclera in some forms of myopia is analogous to the yielding and deformation of the bones in rickets.

A very important point in the myopic process is the tendency which it has to react upon itself. Excessive convergence increases the myopia, and the increase of the myopia compels a still greater convergence. The more the boy stoops over his book the more short-sighted he becomes, and the more short-sighted he becomes the more he is compelled to stoop. In this vicious circle the eyes not infrequently go on from bad to worse until, by reason of the altered shape of the globe and the extreme nearness of the farthest point of distinct vision, convergence for this point becomes impossible, and the effort to obtain binocular vision in reading is instinctively given up. Then with a relative or actual divergence of the eyes the excessive muscular strain is at an end and there is a better chance that the myopic process will come to a standstill.

In many cases of high myopia and in some of moderate degree we have also serious congestive troubles in the uveal tract with more or less clouding of the vitreous—changes which are both a consequence and a further cause of extension and atrophy. Detachment and shrinking of the vitreous is not uncommon, and in the worst cases, happily a small proportion only, vision is permanently lost by detachment of the retina.

On the one hand, then, we see many myopes who suffer little inconvenience from their ametropia at any time of life; on the other we see grave disability and even blindness arising from it; but great as this difference is, we cannot safely, in my opinion, draw a hard and fast line between the two types and say here is a normal condition, here is a disease. In so far as the development of myopia in the individual and in the race is under our control we should, I think, persistently endeavor to suppress it and to preserve the emmetropic type.



2. *Can We Prevent the Occurrence of Myopia or Lessen Its Frequency?*—If the foregoing explanations be true, we may answer the question as follows: To prevent myopia, we must prevent young people from using their eyes too long and too closely upon near objects. By doing so we shall limit the chief active cause; the predisposition we shall not immediately affect, but we may reasonably hope that if in each generation the fresh production of myopia is checked, the predisposition to it will in time diminish. This hope is justified when we see the opposite side of the picture. Educational pressure without due precaution has led, in Germany, to an enormous and, as I think, calamitous development of myopia. The question is one chiefly of school hygiene. Elaborate rules concerning school buildings, school furniture, school books, and school hours have been formulated. I will not trouble you with them here. The present need is not a more accurate statement of these requirements, but a wider knowledge of them among the public. The printed sheet which hangs upon the wall was prepared for the purpose of bringing and keeping the matter under the notice of teachers and scholars in the Birmingham board schools. It now hangs in all these schools, and I am told by a member of the school board that, in some places at any rate, it has effected a decided improvement in the attitudes of the scholars. It is of the highest importance that every school teacher should understand in a general way the mischief which may be done by overstrain of the eye. When that knowledge becomes general the favorite scholars will not, so often as at present, carry off their school honors at the cost of damaged eyesight. In my opinion, a periodical testing of the bodily condition—including especially stature, weight, hearing, and eyesight—should accompany the usual examinations in mental growth. The duty of the oculist in relation to this matter lies at present rather in promulgating common sense than in theorizing as to ultimate causes. The knowledge we have is ample for the purpose, if we can get the people to act upon it.

3. Lastly, *On What General Principles Shall We Deal with*



*Those Who Have Myopia?*—The question sounds absurdly elementary, but I believe that we differ somewhat amongst ourselves in the treatment of our myopic patients, because we are not entirely agreed on general principles. I shall briefly state what appears to me to be the best lines of practice, and hope to excite criticism and discussion.

In every case of myopia the treatment should have a double aim:

- a. To remove as far as possible the present inconveniences;
- b. To prevent as far as possible future deterioration of the eyes.

The details of the treatment will depend in each case upon the following circumstances:

1. *The Age and Occupation of the Patient.*—Other things being equal, the earlier in life a myopia begins, the more likely is it to ultimately attain a high degree; and the more the patient is occupied, either through taste or necessity, in reading, writing, or other close work, the less likely it is to come to a standstill. Children born of myopic parents, developing myopia at an early age, and showing an exceptional fondness for books, are especially in need of restriction in study and periodic examination of the eyes. Adults whose myopia is stationary commonly need advice rather as to present conveniences than as to dangers ahead. Adults with high and still progressive myopia, who still read and write, or sew, without glasses, because, as they commonly say, they do not require them, need, of all others, the firmest interference and the gravest warnings, and must sacrifice some present convenience if they would avoid future disaster.

2. *Upon the Degree and Character of the Myopia*, whether high or low, whether progressive or stationary, whether complicated or not with obvious congestive or atrophic changes. It is a safe rule to suspect every myopia of a tendency to increase, until time has proved it to be stationary; to be doubly suspicious in presence of congestion or atrophy; and to re-examine at intervals—three months, six months, twelve months, or longer, according to the nature of the case. In young

people this is particularly important. It is important because a judicious regulation of the use of the eyes, more or less strict as the course of the case may demand, will check the advance of the myopia if it does not arrest it, and will check the development of the congestive and atrophic changes which too often accompany the advance. To this end we have to inquire as to the amount of book work habitually done, and the manner of doing it. We have often to urge a diminution, especially of evening work by artificial light; and still more often to correct the manner of doing it by insisting on proper attitudes, and by giving glasses and other appliances which render such attitudes possible. In some cases we are bound to advise that all book work shall be given up, perhaps for several years. If we can stop the march of the myopia for a time, we shall gain much, for meanwhile the sclera will be growing stronger, later on it may be better able to bear the strain. For such cases, schools or classes in which young people might be educated with a minimum use of books, pens, and paper are much wanted.

3. *The Range of the Accommodation.*—The myopic eye, being focussed for a near point, uses its accommodation comparatively little. If we give the myope fully correcting glasses, and bid him read with them, we throw an unwonted task upon his ciliary muscles; at first they may be unable to meet the demand; after a little practice, in many cases they recover their normal vigor. Is the accommodative act injurious to the myopic eye? Does it tend to increase the myopia?

Some oculists have maintained that it is accommodation rather than convergence which does the mischief; others, while they regard convergence as the chief offender, yet hold that full play of the accommodation, as when correcting glasses are used for reading, is apt to do harm, and should not be allowed. My own custom, some years ago, was to act on this idea, and to give even to young myopes reading glasses weaker than those required for distance. Later I have come to think differently, partly through reading a forcible article by Forster, an abstract of which may be found in the *Ophthalmic Re-*

view, for January, 1887. My present custom is to encourage rather than to discourage, within proper limits, the use of the accommodation; in other words, to advise those who can to use the same glasses for reading and for distance, and when this is impossible, by reason of weak accommodation, still to give reading glasses as strong as can be worn with comfort. The advantage of such glasses is that they not only enable, but strongly encourage, and sometimes even compel, the myope to increase his reading distance. Experience shows, I think, that the more nearly we are able to re-establish a range and a region of accommodation similar to that possessed by the emmetrope, the better for the patient both in the present and in the future. We are often limited in this direction by impaired visual acuteness, and by the effect of concave glasses in diminishing the size of the retinal images. We must effect the best compromise which the circumstances will permit.

4 *The Presence or Absence of So-Called Insufficiency of the Internal Recti.*—A proper balance between convergence and accommodation is to be obtained if possible. Correcting glasses may establish such a balance. On the other hand, they may greatly disturb a pre-existing balance. A progressive change of glasses, with gradual practice, may therefore be required. Binocular fixation may be favored by decentration of the glasses, by the use of prisms, or by tenotomy. On the other hand, in high myopia, it is often better to encourage monocular fixation in reading, one eye being allowed to wander outward, than to maintain a laborious and injurious convergence.

These are, I think the chief considerations which should guide the treatment of myopia. I will not attempt to speak of details, or of the more serious choroidal and retinal complications which bring many of our myopic patients to us. We may sometimes palliate these, but we cannot cure them. We can do far more important service to the myope, if he will let us do it, by helping him to avoid these complications than by any remedial treatment after the fact.

It will perhaps serve to promote discussion if I conclude by making the following dogmatic assertions; myopia is always a defect; often a disease. It is entirely incurable, but largely preventable. Its progress can be, and often is, accelerated by improper use of the eyes and retarded by judicious interference.

II.—F. RICHARDSON CROSS, M.B., F.R.C.S.,

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No more suitable subject for discussion in this Section could have been selected than that of myopia, whether as oculists we approach it from the scientific standpoint of the interesting facts that have been elucidated by numerous workers with regard to the anatomical peculiarities which predispose to its development, or with regard to the serious pathological conditions to which it gives rise; or whether we approach it on the ground of public health, and make inquiry as citizens, why this malady is so continuously on the increase and what practical means can be adopted in order to prevent the alarming probability of the bulk of the nation becoming short-sighted, either by direct acquisition or by inheritance.

It must be an extremely rare occurrence for a child to be born short-sighted, but he may be strongly predisposed by the confirmation of the eyeball or by peculiarities in the tissues of which it is composed.

The main general factor in causation is found during the act of convergence, which increases the surface pressure upon the eyeball of the muscles which oppose this act. The external rectus lies in contact with the globe for an average length of no less than thirteen millimetres, and, by its mere tone, exercises considerable side pressure upon the eye. The greater the convergence the more the external rectus enwraps the globe, increases the side pressure, and tends to elongate the antero-posterior diameter of the eye.

Both obliques also evert the optic axis and oppose the act of convergence. The inferior is in closer contact with the

globe than any other muscle (17 millimetres). Its tension would squeeze the sclera and elongate the eyeball. Although the usual length of surface contact of the superior oblique is only about five millimetres, Stilling has shown that this muscle varies considerably in its direction and in the position of its insertion, which may reach back almost to the entrance of the optic nerve. He considers that the form of the eyeball depends mainly upon its relations to the superior oblique. This muscle, in some cases, seriously compresses the eye, or may, by dragging on the margin of the nerve, become the direct cause of a myopic crescent.

The manner in which the muscles enwrap the eyeball will be influenced by the shape of the orbit and the relative position of the globe within it. Take, for example, the position of the trochlea, as varying with the shape of the orbital roof.

With a given anatomical formation as a predisposing cause, a greater or less degree of myopia will be established according to the amount of convergence exercised by the individual, either in continuance or in degree. We live in an age of excessive convergence. The overtaught schoolboy sits continuously for hours at his books; the clerk lives at his desk; professional and mercantile life is largely passed within an office; and dwellers in towns have their vision usually limited by the opposite side of the street. Numerous statistics and statements by careful observers, and the general experience of ophthalmic surgeons, clearly show the increasing prevalence of short sight in this country, and that this defect is out of all proportion most commonly found amongst those who have used their eyes the most assiduously for prolonged work requiring close vision. It is, moreover, during the period of growth that short sight first appears and is most active in its progress. Attempts to arrest its development must therefore be made during schooldays, with the co-operation of those who are responsible for the scholars—the teachers and the boards of education. Even though in a perfectly healthy eye no amount of work *per se* causes myopia, at the same time it cannot be too distinctly stated that most cases of myopia are

due to overpressure and to hygienic defects in the schools and colleges.

All more recent observations have only confirmed those of Dr. Cohn, of Breslau, who, disregarding all myopias under 1 D, found (1) the higher the school the greater the percentage of myopes: in the village schools, 1.4 per cent; in the elementary schools, 6.7 per cent; in the middle schools, 10.3 per cent; in the technical schools, 19.7 per cent; in the gymnasias, 26.2 per cent; in the university, 59 per cent. In fine of the gymnasias the myopes numbered over 50 per cent. 2. In each school the number of myopes increases from class to class upward, from 15 per cent in the lowest classes of the gymnasias to 56 per cent in the higher classes. 3. The higher the school, or the higher the class in the same school, the higher is the average degree of the short sight.

In April, 1881, a committee was appointed by the Lords Commissioners of the Admiralty to hold an inquiry upon certain points connected with the Greenwich Hospital School, with especial reference to the very large proportion of boys who were found to have become while there physically disqualified for the naval service. Of 1,074 boys admitted at 13 years of age with perfect sight, as tested by Snellen's method, no fewer than 60 were declared unfit for the navy on account of imperfect vision when they passed out of the school at the age of 15½ years. Almost all the 60 cases were suffering from myopia, which had thus been proved to arise during the school life; moreover, it was found out of all proportion most frequently, and of the highest grades, amongst the lads of the more advanced classes, who spend most of their time in study and reading. The condition of the school-rooms was found to be very unsatisfactory. Illumination was most imperfect, and the boys were often sitting in their own light. The old-fashioned desks and stools, of the same size for all pupils, necessitated a constrained and awkward position and much bending over the books.

These evils have since been very completely corrected. Cubic space is abundant, obstructive partitions have been re-



moved, and proper windows have been inserted. New desks of varying sizes have been supplied, and have been placed in the proper position with regard to the windows, securing not only abundance of light in every part of the room in which the scholars sit, but its correct incidence.\*

At about the same time in Paris, on account of the increase of myopia in children, the Minister of Public Instruction nominated a commission for the hygiene of sight in schools. The commission included school inspectors, publishers, and printers, with oculists, and these drew up practical rules for the guidance of the municipal architects of Paris and the school authorities. Only last November, however, M. Drolais, at the Paris Academy of Medicine, called attention to the alarming increase of myopia in the French schools, which he says will continue if the authorities who ought to realize proposed reforms rest content with their simple proposal. He asserts that school myopia is a question neither of race nor heredity, but is developed in the pupils by the present hygiene defects in the schools and colleges.

Could we to-day in England honestly repudiate such a statement if made with regard to our own educational system? If not, what is to be done to improve matters? It is of the first importance to develop an intelligent interest in this question in the minds of our schoolmasters and to seek their active co-operation. A good deal has been recently written and said about over-education, but with competitive examination based upon its present principles the cram system is likely to become more and more popular.

Long school hours are of no avail unless also study is prolonged through the evening into the night. There is no objection to this in the case of those boys who learn easily or of those of fair physique; but many are broken down by it, and many others are only helped into a false position at the start of life. Another distinction may have been added to the credit of a school, but the individuality of the prize-winner is

\*Abstract of a paper by Fleet-Surgeon Henry Hadlow, *British Medical Journal*, May 19, 1883.



lost, and no one is more disappointed with his future commonplace career than himself. In all this over-reading the chief primary strain falls upon the eye, and as a simple question of economy every possible means should be adopted to make its work easy.

1. School books should be well printed, with large, clear letters, easily differentiated from one another, the words well set apart, black on a thick white paper. The practice of giving papers illegibly chromographed for evening preparation by artificial lights is especially deleterious, and the use of the ordinary grey slate should be abolished.

2. The light should fall upon the book directly from the sky; if not, it should be as perfect as possible, plentiful and well distributed. Where artificial light is needed, it should be steady, cool, and bright upon the print, without dazzling. The best possible illumination during evening lessons in the study or at home is no less important than the lighting of the school-room.

The prevention of short sight mainly depends on keeping the eyes of children and young people sufficiently far from their work. For this purpose both seat and desk should encourage a proper position of the head and spine, and a sufficient distance (at least a foot) of the eyes from the book. If necessary, the proper spectacles must be used to effect the same purpose. Sometimes abducting prisms are of value. The fact that face rests or straighteners have come into use in order to prop up the child's head, and prevent it getting too close to the desk, is a sad comment on the excess to which book teaching is in some cases now being carried. Whatever of gain may be given by such barbarous instruments is surely neutralized by the general nerve worry they produce.

The desks and seats should, wherever work is being done, be as perfectly arranged as possible for the purpose required. Much ingenuity and enterprise have been expended on school desks; in the Paris Exhibition of 1867, only three types were shown, but seventy-one kinds were exhibited in that of 1878.

Our distinguished colleague Priestley Smith, a few years

since, devised a simple form of hygienic desk for use either at school or at home upon any ordinary table, a full description of which is given in the *Ophthalmic Review*, 1886, vol. v.

However perfect the conditions are made under which eye work is to be done, there must be a limit to its safe amount, and this will vary with the individual student.

I do not doubt that the hours fixed in the schools are the best for the majority of boys, but for many they are too long. Faulty vision is present probably in about two-thirds of the scholars; hypermetropia mainly, to a less degree myopia; and in either case serious troubles may supervene upon injudicious use of the eyes, or may be prevented by a timely rest.

Many people still believe that short sight is by no means an unmixed evil, and that the inconvenience of wearing spectacles to see at a distance in youth is to be counterbalanced in later years requiring no such artificial aid for reading,

The sad fact must, however, be admitted that the short-sighted eye is an invalid specially liable to congestion and to discomfort even under a moderate amount of work, not infrequently rendered incapable of reading by degeneration of the choroid or even absolutely blinded by detachment of the retina.

The short-sighted eye is an accompaniment of high civilization. A slight myopia is, perhaps, rather an advantage, and it has been suggested that there may be a special tendency to overgrowth of the eye in those who have a high degree of cerebral development, because the eye vesicle being essentially an outgrowth of the brain these two structures tend to grow in unison to a similar extent and at the same time impress a type upon the skull and sclera, whose function it is to protect them.

On the other hand many children have inherited a tendency to a distinctly pathological form of myopia and to serious delicacy of the eye tunics. In these slight overwork readily induces hyperæmia and inflammation of the choroid, with excessive yielding at the posterior pole of the eyeball under pressure of the extraocular muscles.

Unless such cases are carefully watched a vicious circle is started which goes on from bad to worse and more serious future damage can only be averted by absolute avoidance of all kinds of severe eye work.

When any suspicion exists that myopia is progressive the eyes of the pupil should be examined at stated intervals by a competent authority, and if he finds it necessary to recommend some modification of the school curriculum, as, for instance, a rest of a few minutes during every hour of school work or a cessation from evening study, both parents and teachers should recognise the serious risks of neglecting such advice.

III.—HENRY EALES, M.R.C.S.,

Honorary Surgeon Birmingham and Midland Eye Hospital.

Mr. Eales dissented from the traditional teaching that myopia was never congenital. Seventeen years ago a child, *æt.* 18 months only, came under his notice with a myopia of 11D, and this case at the present time differed little from many of the cases of high myopia which were often seeking advice at hospitals. Certainly the myopia in that case was not caused by education, and it seemed impossible not to believe it to have been congenital, and if so, why might not many of these higher myopias also be congenital? He fully agreed with most that had been said by Mr. Priestley Smith, and believed that by care and the management of moderate cases in young people, on the lines laid down by him, the myopia might be kept within moderate and safe limits. Personally he (the speaker) always fully corrected the myopia, and enjoined the use of those glasses for all reading and writing, unless it was found that the accommodation was weak, when he ordered weaker glasses for near work. He found that in many cases where insufficiency of convergence was present, it was removed by the use of full correcting concave glasses, to the great relief of the patient. He thought this insufficiency one of the chief causes of aching about the eye in myopes; when this was not removed by concave glasses, he was in favor of

combining prisms with the concave glasses for near work. He thought the existence of astigmatism was very prevalent in myopia, and was strongly of impression that it was an important factor in its causation, and always carefully corrected it.

He often found spectacles of compound lenses, containing a spherical, cylindrical, and prismatic glass, most useful in these cases. The most marked features about myopic eyes was their tendency to choroidal diseases, which was found in many different forms.

IV.—HENRY E. JULER, F.R.C.S.,

Ophthalmic Surgeon St. Mary's Hospital.

Mr. Juler entirely agreed with the authors of the papers as to the absolute necessity of good illumination, of correct posture, and of moderation of work; and he had no doubt that all members present would be of the same opinion. What they were likely to be at variance about, and what it seemed to him desirable that an opinion should be elicited about, as was to the best way of prescribing correcting glasses. In young myopes, whose eyes presented no signs of choroidal trouble, he entirely agreed that a full correction should be adopted, either at once or by progressive stages. Patients became very happy in their use, even where high degrees of myopia existed. Any existing astigmatism should be accurately corrected. In cases where choroidal troubles were associated with myopia, either progressive or otherwise, he was more anxious and thought more importance should be attached to rest of the eyes and the general health. He had not that fear of using glasses which seemed to exist among some colleagues.

V.—KARL GROSSMANN, M.D.,

Ophthalmic Surgeon Stanley Hospital, Liverpool.

Dr. Grossmann pointed out as one of the most important causes of myopia the existence of astigmatism in children on

the one hand and of corneal opacities on the other. It was evident that in astigmatism no amount of accommodation could produce sharp images, and the child finally resorted to bringing the eyes close to the object, in order to obtain large though indistinct images. The same was the case with corneal opacities. The great amount of strain caused congestion in the myopic eye and it was only natural that the weakest part should give way, and become inflamed and partially lose its function. This was the region of the macula lutea. Dr. Grossmann considered choroiditis as the result, and not as the cause, of myopia. As to prevention and treatment, he preferred to give different glasses for distance and for near objects; or if one glass only had to be given, that for near objects alone. In order to obviate the painful brightness of strong glasses for outdoor wear, he strongly recommended for that purpose neutral-tinted glasses. Prismatic glasses were only rarely of any avail. The effect of the tilted position of folders was of rather small importance, and had to be taken on its own merits. In one case a concave glass would produce astigmatism when tilted, while in another instance it might happen to correct existing astigmatism to a considerable degree. This was often seen in patients who not infrequently and unconsciously corrected their astigmatism by the inclination which they gave to their folders. As for the curability of myopia, the fact that a myopic eye of a child might grow out of its myopic refraction when properly looked after should always be borne in mind, and certainly tended to show that myopia was curable within certain limits.

VI.—SIMEON SNELL, M.R.C.S.,

Ophthalmic Surgeon Sheffield General Infirmary.

Mr. Snell referred to the subject as being closely associated with that of overpressure, and said it was desirable for each of them in his own locality to do what he could to enlist interest in, and impart information respecting, the subject. On two occasions he had been invited to address teachers on the

subject, and he insisted on the point that the invitation on each occasion came from the teachers themselves. He found that they were more alive to the importance of recognising imperfections of vision than was formerly the case.

VII.—C. MACNAMARA, F.R.C.S.,

Surgeon Westminster Hospital and Royal Westminster Ophthalmic Hospital.

Mr. Macnamara said that not having heard the paper he would not attempt to make any comments on the points raised by Mr. Priestley Smith, but having listened to the discussion with great interest the point which had occurred to him was the desirability of individual members exercising their influence upon the educational authorities in the localities in which they resided rather than trusting to effect any practical results through the Government or their representatives in the Education Department. Unquestionably the Ophthalmological Society could best work the scientific side of the question, but he doubted if much could be effected in this direction in influencing the public, and so the guardians of the young, especially in home studies. But the medical attendant might, if he would only take the trouble, preserve the eyes and health of those under his care. Their work was responsible for a good deal of myopia combined with bad light. There could be no disputing this fact, and they could each and all of them press this important fact on parents, schoolmasters, and such like persons, and by doing this they would prevent the development of lower degrees of myopia in combination with the use of proper glasses.

VIII.—G. J. BULL, M.D.,

Paris

Dr. Bull said, in reply to Mr. Juler's remarks as to the propriety of fully correcting the myopia, that myopia frequently appeared to be greater than it really was by reason of a spasm of accommodation, which might not be relieved even by a few



days' use of atropine. He who gave the glass which appeared to be the full correction would often be giving an over-correction. Unless the glass was placed with its curved surface normal to the line of sight, it produced the effect of a cylindrical lens. The effect of the object being proportional to the number of the lens, it would be greater with the fully correcting glass than with a glass two or three dioptries weaker that would be suitable for reading. If a strong glass was used in spectacles for both reading and distant vision, it would be placed obliquely for one, if not for the other, and the cylindrical effect produced was fatiguing to the accommodation, and might tend to produce spasm and increase a myopia. The distance glasses should be erect, the reading glasses tilted.

IX.—W. J. CANT, M.R.C.S., L.R.C.P.LOND.,

Honorary Surgeon Lincoln County Hospital.

Mr. Cant mentioned a case of congenital myopia in a child *æt.* 6 months,—10 D. was found. The lens of the left eye slowly became opaque, and at the age of 12 months the cataract was complete. He considered it not advisable fully to correct the myopia in children.

X.—H. BENDELACK HEWETSON, M.R.C.S.,

Ophthalmic and Aural Surgeon Leeds General Infirmary.

Mr. Hewetson regretted that he was not able (being detained in another Section) to hear the papers on myopia. The following facts, however, would be interesting to the Section: A medical missionary—Mr. Harrison—whom he had especially trained, had examined a large number of aborigines in Cook's Isles in the South Pacific as to the prevalence of myopia in a set of people only thirty years removed from absolute savagery. Mr. Harrison found a very large proportion of highly-myopic savages. He (the speaker) also noticed myopia in horses and other animals, especially in horses which shied from an inability to see clearly. These were myopic by the ophthalmoscope.



## XI.—CHARLES WRAY, F.R.C.S.,

Ophthalmic Surgeon Croydon General Hospital.

Mr. Wray said cases seemed at times to be congenital; for example, a patient came to the hospital when 4 years of age, with myopia over 17 D., and a large myopic crescent. It was difficult to believe that accommodation had any influence. The principal cases for treatment were those occurring in delicate subjects of tender age, in which through the extensile condition of the fibrous tissues it would be legitimate to suppose yielding of the sclera would ensue under prolonged eye strain at near work. Was there any connection between circulatory obstruction and myopia? Any increase in the circulatory mechanism *pari passu* with the increased demand for it by virtue of the estrangement of the globe? It was desirable in hyalitis with high myopia, to use "Franklin's," to take the strain off the ciliary muscle where a good distant vision was indispensable.

## MR. PRIESTLEY SMITH'S REPLY.

Mr. Priestley Smith, in reply, said the errors which accompanied the use of the shadow test in high myopia depended chiefly on the deformity of the back of the eye; the disc stood obliquely, the macula was more distant than the disc, hence it was necessary, for correct estimation, to examine at the macula; but in very high myopia it was practically unimportant to distinguish objectively between, for example, 20 D. and 22 D. His own measurements of 1,000 healthy corneæ proved that the size of the cornea bore no constant relation to the refraction; the average diameter was the same in H, E, and M. There was no evidence that high myopia of the ordinary kind was allied to glaucoma; the tonometer showed no excess of tension, the field was not contracted, the disc was not cupped, and the deformity of the globe was different from that which arose from glaucomatous pressure in young eyes; the yielding of the sclera was more localised. With regard to the correction of low degrees of M., the principle of removing inconven-

ience and preventing deterioration held good. To a school-boy with M. of 1 D., he would say: "Have you any inconvenience? Can you see the black board," etc.? He probably had little or none. Then he would give him no glasses. They would be more plague than profit even for distance, and for reading were unnecessary. But to the parents he would explain the probability of increase, the great importance of strict attention to the amount and mode of study, and would advise that the teacher be communicated with, and that the boy be re-examined in six months. If the M were higher than 2 D., he would give correcting glasses, probably to be worn constantly, certainly to be worn invariably for near work. He would say: "You may wear these all day long; you must wear them whenever you read, or write, or draw, or play the piano." He was very glad to find, from their discussion, that they were agreed as to the national importance of the prevention of myopia. Some recent writers were inclined to minimise it; he believed that such teaching was likely to do serious harm. While resolutions such as that which was about to be proposed to them might in time do good, he was inclined to rely more upon the individual efforts of each one of them in his own neighborhood.

MR. RICHARDSON CROSS, REPLY.

After reference to some special points in the relation of the intraocular muscles to the globe and the importance of successive prolonged convergence of the eyes on the production of myopia, Mr. Cross alluded to the necessity, in these days of severe competitive examination, of giving the eyes every opportunity of doing their work in ease and comfort, and strongly advocated the importance of drawing the attention of school teachers and school boards to the fact that a large amount of myopia was directly due to the want of proper treatment of the eyes during school work and during home preparation. Everything possible should be done to make the lighting of schoolrooms perfect; to insist on a proper attitude of the students while at the lessons, and to see that properly arranged

desks and forms were provided; and to encourage the proper printing of school books. When this had been done it would still be evident that certain eyes could not do the full share of the ordinary school curriculum, and both parents and teachers should realize the importance of seeing that the advice of the oculist was faithfully carried out, whether it were an occasional rest during school hours or the abolition of evening lessons, or absolute rest for six months, or whatever was considered necessary for the eyes. The serious tendency of some short-sighted eyes was also passed in review. But the object of the paper was to try to enforce the interest of the family physician and the public on the whole question, which ophthalmologists had done so much to explain and to evolve.

#### RESOLUTION.

On the motion of Mr. Bell, seconded by Mr. Wray, the following resolution was adopted: "That the officers of the Ophthalmological Section communicate with the officers of the Ophthalmological Society of Great Britain and Ireland with a view of making recommendations to the Education Department for the control of the increase of myopia in Board Schools.

## SELECTIONS FROM AMERICAN MEDICAL JOURNALS.

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### PRELIMINARY CAPSULOTOMY IN THE EXTRACTION OF CATARACT.

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BY T. J. TYNER, M.D., AUSTIN, TEXAS.

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Owing to the great amount of literature recently devoted to the subject of cataract extraction, I owe it to you as a matter of courtesy, as well as in justice to myself, to say I would not presume to bring it forward now had I not failed after diligent search to find a precedent for the operation which I shall hereafter describe, and which I believe possesses some merit. The nearest approach to it is in opening the capsule with the point of the knife as it enters the anterior chamber while the section is being made and with which you are all familiar.

The leading point in the operation is in making the capsulotomy the primary step, thereby enabling the operator to deliver the lens at the very moment the corneal section is completed. I will not encroach upon your time with the progressive history of the many methods devised by different operators, nor with the details of this operation as to instruments, antiseptics, after-treatment, etc., as they differ in no essential particular from the generally accepted measures in other methods.

Supposing the eye to be now ready. A Bowman stop-needle is thrust into the anterior chamber—the pupil having been previously dilated—the point of which, and also the entire field of the incision, are in full view.

The capsule is now lacerated in its upper quadrant, the line of incision corresponding to the upper pupillary curve of the

iris. In this manipulation, and in withdrawing the needle, the greatest care should be observed that no aqueous is lost. The eye is now practically undisturbed and as favorable for the corneal section as before, which is to be done quickly, using a Graefe knife, preferably rather broad. When the section is finished, pressure with the flat of the blade causes the corneal opening to gape, when at the same moment counter-pressure with the fixing forceps below aids the expulsion and the lens glides out through the still open pupil with surprising ease.

I will mention here that the lens, having no choice, or rather no other avenue of escape, almost always indicates a tendency to follow the knife as the corneal incision is progressing, and when it is finished the lens is partly in the anterior chamber. I state this to demonstrate why it is so promptly delivered and that the foregoing expression is not extravagant.

The operation is simple throughout and easily done, and is accomplished when the most difficult part in other methods begins. An additional point of interest is: If the lens is susceptible of being dislocated—and this is made manifest so soon as the needle touches the capsule—there is, in my experience, no way to accomplish it so perfectly and harmlessly as with the needle at this stage of the operation. This is somewhat similar to Delgado's method, and, strange to say, was the result in my first case, which occurred last October. Since then I have performed the operation twelve times with a good result in each one, or, to be more definite, with the exception of two cases, the result was far better than that formerly achieved. In the two cases referred to there was severe iritis with posterior synechia, and in four others it was manifest, but only in a very mild form. In the remaining six cases there was absolutely no reaction. I am inclined to think the iritis was in part due to the excessive strength of the atropine used in dilating the pupil, which, a few hours after the operation, reasserts itself, hence crowding the iris nearer the corneal wound. I now use the weakest solution of atropine that will serve the purpose. Eserine might be useful in some cases, though as yet I have not felt the necessity of resorting to it.

I neglected to mention in the foregoing statement that in three of the cases the lenses were extracted in their capsules.

If you will now bear with me a few moments longer, and I trust not without interest, I will relate the circumstances, which by the way were partly accidental, that led up to the development of the operative procedure above described. In July, 1885, I operated on a Mexican, and while I was opening the capsule, having done an iridectomy, fluid vitreous escaped so rapidly that the globe was so collapsed that the lens could only be delivered by the aid of the iris forceps, having fallen into the posterior chamber. Singular to say, there was a good recovery with useful vision, which result encouraged me a few weeks later to attempt the extraction in the other eye. Anticipating the same condition of vitreous, the thought suggested itself to open the capsule with a needle previous to making the corneal section. This was successfully performed, and, while there was loss of vitreous (fluid), it was slight compared to the first. This case is recorded in the published statistics of Texas surgery in 1886. This little procedure passed out of my mind until the discussion became so general in regard to a return to the simple extraction, which later on was adopted by most operators. It was not my wish to give up the iridectomy, but in the mean time, however, I had several cases in which the lens popped out through the pupil just as the section was completed—one in which I have opened the capsule with the point of the knife as it entered the anterior chamber, the patient at the moment the section was finished squeezing the eye. Another case was traumatic, in which the particle of steel could be distinctly seen in the lens, which had thoroughly lacerated the capsule. This was a fac simile of the preceding case, the fragment of steel coming with the lens. This case, together with others, impressed upon my mind that the lens indicated a tendency to escape, and, as a natural consequence, sought the course of least resistance. Upon this hypothesis I endeavored to make the simple extraction in this way—*i. e.*, by opening the capsule with the point of the knife;



but it was attended by so many failures to make the rapid extraction without injury to the iris that I abandoned it. About this time I recalled to mind the preliminary capsulotomy done with the needle in 1885, which a few months later (after returning from my summer vacation) I put into practice with the results as above given. (*N. Y. Med. Jour.*)

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## OBITUARY.

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### HENRY FERRER, M.D. +

As we go to press the deplorable news comes to us through some friends, that Dr. Henry Ferrer, of San Francisco, died after a lingering illness.

He had received his education in Germany and was one of the leading oculists in San Francisco, and although he has not enriched literature to any great extent, his continued labors in the advance of science and knowledge have been well known and appreciated by his colleagues. He was a conscientious worker and a noble hearted man.

My own personal friendship for him, founded at the time of our University life at Heidelberg, makes his loss the more palpable for me.

He was a collaborator of this journal, but his time did not allow him to contribute much.

He leaves a wife whom we tender our sincerest sympathy.

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